FAA Safety BRIEFING

March/April 2013

Your source for general aviation news and information

Safety Standdown

Building a Safety Community

How to Avoid Get-home-itis, p. 9

Sprout New WINGS, p. 14

Why Smart People Do Dumb Things, p.21

Federal Aviation Administration

faa.gov/news/safety_briefing

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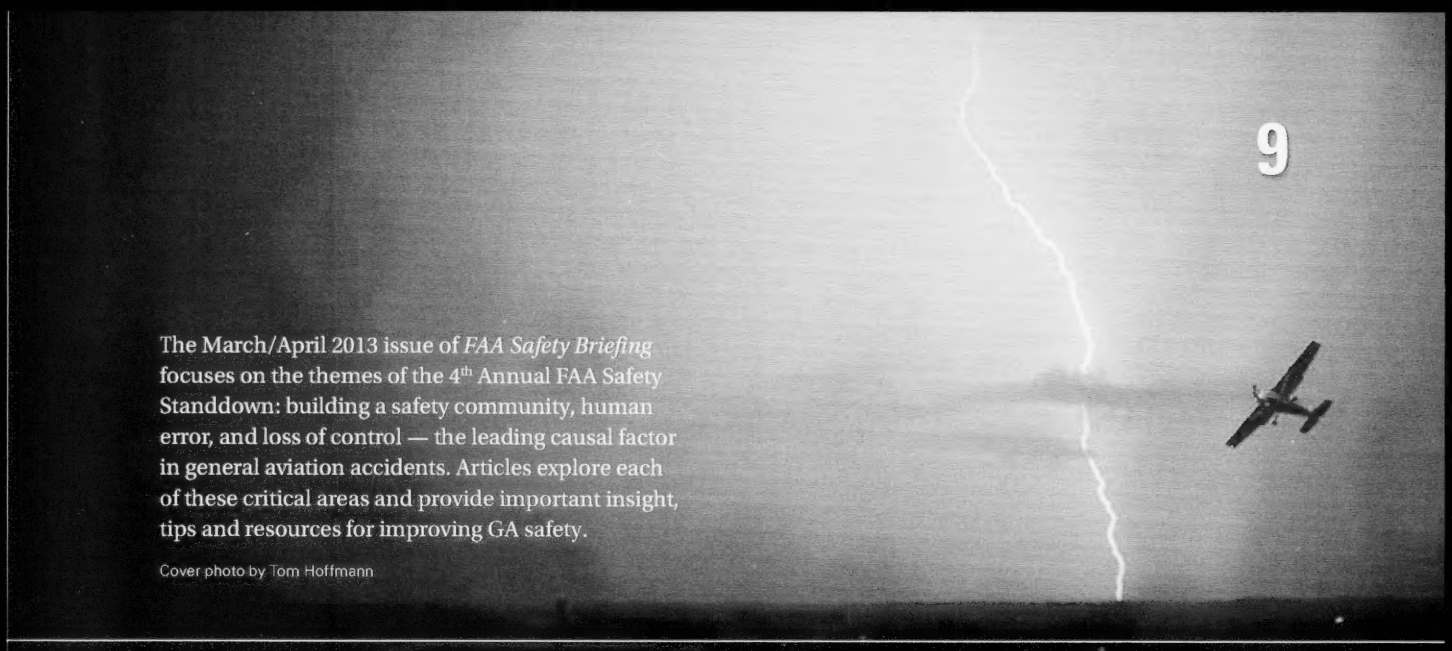

The March/April 2013 issue of *FAA Safety Briefing* focuses on the themes of the 4th Annual FAA Safety Standdown: building a safety community, human error, and loss of control — the leading causal factor in general aviation accidents. Articles explore each of these critical areas and provide important insight, tips and resources for improving GA safety.

Cover photo by Tom Hoffmann

FAA Safety Briefing is the FAA safety policy voice of non-commercial general aviation.

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JOHN ALLEN
DIRECTOR, FLIGHT STANDARDS SERVICE

Community: Springboard to Success

Several times each week, the head of the FAA's Office of Accident Investigation and Prevention provides the agency's senior leadership with an update on the latest general aviation (GA) fatal accident statistics. It's not a pretty picture. On the contrary, I'm very sorry to say it's a rare day when he reports "no new GA fatals," which is of course the message we all hope to hear.

Even more frustrating is that we get a lot of information about WHAT happened. As the investigations proceed, we periodically get information about HOW it happened. But it is rare to get solid information on WHY it happened. And, in my view, we need a better sense of both HOW and WHY in order to reduce the GA fatal accident rate.

As you know from articles this magazine has published over the past year or two in the *Angle of Attack* department, FAA staff working in support of the government/industry General Aviation Joint Steering Committee (GAJSC) have been combing through GA accident reports in search of actionable information on the HOW and WHY factors. Their task includes looking for patterns and for systemic issues that we can address through non-regulatory measures in cooperation with the GA community.

Safety Community

Community is an important concept in this endeavor. Whether you are an introvert or an extravert, being human means being part of a community. More accurately, it means being part of many communities, groups that we join or build in accordance with our specific needs, interests, and aspirations. Communities can play a vital role in our individual, as well as collective, success.

That is certainly true in aviation. To my mind, the aviation community includes aviation advocacy organizations, training providers, and pilot groups — including type clubs. We have actively engaged with these groups on non-regulatory GA accident reduction initiatives.

It also includes "flight-minded" people in the FAA. I have frequent brainstorming discussions on GA safety with my senior staff, which includes several GA enthusiasts. Through the FAA's IdeaHub, which allows employees to comment on and support ideas submitted by other employees, we are sponsoring a challenge to find creative new ideas to reduce the fatal GA accident rate. And we are bolstering the role of the FAA Safety Team (FAASTeam) in this critical work.

The idea of community as a means of providing support, encouragement, and safety accountability led to the selection of the "Building a Safety Community" theme for this year's FAASTeam Safety Standdown (SSD). The core concept is that the pilot community can provide accountability that enhances safety. If you know that your fellow flyers — people whose opinions and respect you value — would not approve of a course of action you're considering, you may be less likely to proceed. At the least, the idea of pilot community disapproval might make you stop, think, and revise your decision.

We will formally launch this year's SSD at the annual Sun 'n Fun fly-in in Lakeland, Fla., but FAASTeam program managers will organize and lead local SSD events throughout the country. The plan is to bring pilots, airport officials, aviation business people, and FAASTeam members together to share ideas, tips, and best practices, as well as to foster forming the personal relationships that create a true safety community.

A pilot safety community can also provide accountability. If you know that your fellow flyers — people whose opinions and respect you value — would not approve of a course of action you're considering, you may be less likely to proceed.

To focus the SSD sessions, the FAASTeam has developed a three-part program. Each SSD event will start with a presentation and discussion tailored to the specific area's GA issues and concerns. The next presentation focuses on avoiding human error, including an introduction to the "wired-in" factors that can lead to human error and the use of safety risk management to mitigate those factors. Loss of control — still a big killer in GA — is the subject of the third session.

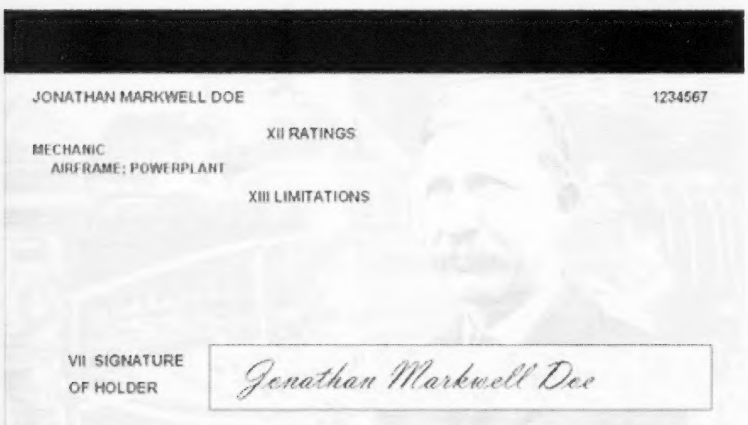
I urge you to keep a lookout for information on SSD scheduling in your area, and to put "safety community" on your calendar for that day. Your community needs your participation and your support.

Mechanic and Repairman Certificate Redesigned

In January 2013, the FAA's Civil Aviation Registry began issuing mechanic and repairman certificates that honor aviation pioneer Charles Taylor, the first aviation mechanic in powered flight. Taylor designed and built the first aircraft engine used by the Wright brothers and contributed to many other early Wright engines and airplanes.

Since 2003, all airman certificates have been made of composite plastic — incorporating security and tamper resistant features. They include background images of the Wright Brothers, the 1902 Wright glider, and a Boeing jet aircraft.

The FAA requires all mechanics and repairman still holding paper certificates to exchange them for the new plastic ones no later than March 31, 2013. The best way to get a replacement certificate is to follow the instructions at http://go.usa.gov/49Nj. The replacement cost is $2, unless you still have your Social Security Number on your certificate and you ask to have it removed.



A sample of the new AMT certificate

Type Club Coalition Launches Website

Whether you fly a warbird or a homebuilt, or something in between, chances are there's a type club out there that can help you become more in tune with your aircraft. Type clubs generally function as a safety and informational support network to keep members abreast of best practices as well as any changes or news regarding their aircraft.

And now, understanding the important value of these clubs just got a lot easier thanks to the newly formed Type Club Coalition (TCC).

According to its website, hosted by the Experimental Aircraft Association — http://eaa.org/govt/tcc.asp — the mission of the TCC is to "leverage the knowledge and resources of the coalition to better prepare GA pilots for flight risks associated with known accident 'hot spots.'" The website currently lists 20 type clubs that have joined the TCC, many of which have already worked hard to develop training programs and best practice guides to improve safety for their members. The TCC will only enhance this process, allowing a variety of experts to come together and further develop these resources.

"If the community can work together to eliminate the common mistakes of aircraft operation, type-specific or otherwise, the overall safety of GA will increase substantially," the site stated. For more information, or if you or your organization is interested in joining the TCC, contact TCC chairman Tom Turner at asf@bonanza.org.

FAA Stresses Importance of Manual Flying Skills

In a Safety Alert for Operators (SAFO) issued on January 4, 2013, the FAA urged pilots that a "continuous use of autoflight systems could lead to degradation of the pilot's ability to quickly recover the aircraft from an undesired state."

The SAFO was issued based on the recent analysis of flight operations data (including normal flight operations, incidents, and accidents), which identified an increase in manual handling errors. The FAA believes maintaining and improving the knowledge and skills for manual flight operations is necessary for safe flight operations and opportunities to exercise these skills should be encouraged when appropriate.

"Although the Safety Alert targets air carrier operations, the topic of manual flight operations also has great relevance for the general aviation community," said Robert Burke, Aviation Safety Inspector

with FAA's Air Carrier Training Branch. "An over-reliance on automated cockpit technology for GA pilots can have equally detrimental effects on flight safety. During a flight, pilots should always be seeking appropriate opportunities to maintain their 'stick and rudder' skills."

Xarelto Allowed for Aeromedical Use

In December 2012, the FAA's Office of Aerospace Medicine declared that the anticoagulant drug rivaroxaban (Xarelto) is allowed for use in aviation.

Xarelto is a prescription medicine that helps reduce the risk of stroke and blood clots in people with atrial fibrillation, and is used to treat and prevent deep vein thrombosis and pulmonary embolism.

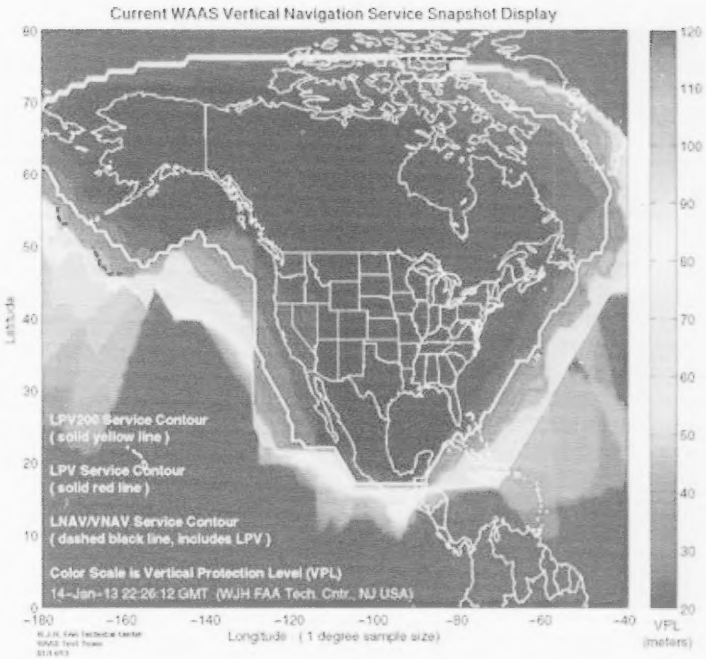
In addition to the condition being treated by Xarelto remaining stable, you must also have been on the drug for at least two weeks before submitting any medical records to the FAA for consideration. Because of the condition and the use of Xarelto, the FAA will certify pilots under special issuance authorizations with periodic status reports.

For more on how the FAA evaluates drugs for aeromedical use, see the article "From FDA to FAA" in the Jan/Feb 2013 issue of *FAA Safety Briefing*.

Data Request Under Pilot's Bill of Rights

Under the new Pilot's Bill of Rights, an individual who is the subject of an investigation related to the approval, denial, suspension, modification, or revocation of an airman certificate may request certain air traffic data from the FAA related to his or her case. While much of this data can be copied in a format that can be sent and reviewed by the airman requesting it (e.g., executable files, CDs, paper, or other media), there may be instances when requested data may only be meaningfully obtained when viewed on FAA Air Traffic Organization (ATO) equipment. For example, if the airman wants to see more of a certain radar recording being replayed — such as at a slower speed, or looking only at the subject aircraft versus all aircraft — then that data needs to be played at the FAA facility or at a facility with the appropriate replay program.

For those cases where air traffic data cannot be meaningfully reviewed without the use of government equipment, the Flight Standards District Office (FSDO) should arrange with the airman and appropriate ATO personnel to facilitate a review of the data on ATO equipment. For more information, go to www.faa.gov/pilots/rights.


Current WAAS Vertical Navigation Service Snapshot Display
LPV200 Service Contour
(solid yellow line)
LPV Service Contour
(solid red line)
LNAV/VNAV Service Contour
(dashed black line, includes LPV)
Color Scale is Vertical Protection Level (VPL)
14-Jan-13 22:26:12 GMT (WJH FAA Tech. Cntr., NJ USA)
Latitude
Longitude (1 degree sample size)
VPL
(meters)

Screenshot from a WAAS LPV performance video

WAAS Performance on Display

Since 1999, the Wide Area Augmentation System (WAAS) Test Team at the FAA's William J. Hughes Technical Center has reported quarterly on the performance of both the GPS and WAAS systems. In addition to those reports, the WAAS Test Team also maintains a website with a wide selection of real-time performance monitoring tools at nstb.tc.faa.gov.

The real-time WAAS performance plots are created every three minutes and all real-time plot pages update every two minutes. The interactive WAAS performance display applications are available with both a 2-D and 3-D display, the latter of which requires Google Earth to view. With the tool, users can toggle on or off airport and satellite locations, as well as coverage areas for different approach categories.

Performance videos are available on the page and show animated performance data for the previous 24-hour period. There are also links to performance analysis reports which contain the most detailed analyses of GPS and WAAS performance.

Sun 'n Fun 2013

Are you ready for some aviation excitement? Then this year's Sun 'n Fun International Fly-In and Expo will help you shake off the winter cobwebs and

U.S. Department
of Transportation

**Federal Aviation
Administration**

ISSN: 1057-9648
FAA Safety Briefing
March/April 2013
Volume 52/Number 2

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Published six times a year, *FAA Safety Briefing*, formerly *FAA Aviation News*, promotes aviation safety by discussing current technical, regulatory, and procedural aspects affecting the safe operation and maintenance of aircraft. Although based on current FAA policy and rule interpretations, all material is advisory or informational in nature and should not be construed to have regulatory effect. Certain details of accidents described herein may have been altered to protect the privacy of those involved.

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The Office of Management and Budget has approved the use of public funds for printing *FAA Safety Briefing*.

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The magazine is available on the Internet at:
http://www.faa.gov/news/safety_briefing/

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The FAASTeam National Resource Center in Lakeland, Fla., is also the home to the FAA's Sun 'n Fun safety seminars.

get the flying season started in style. Lakeland, Fla., is home to the event, which spans April 9 – 14, 2013, and features aerial performances, exhibits, and educational seminars. The FAA will host four seminars between 0830 and 1400 each day, which will include updates on the WINGS program, the Pilot's Bill of Rights, and airmen medical certification. NTSB Board Member Dr. Earl Weener is also scheduled to speak on April 13, as well as U.S. Rep. Sam Graves who will host a general aviation town hall discussion. For a complete list of FAA-hosted seminars, go to http://qrs.ly/3o2wzuf or visit www.sun-n-fun.org.

If you're planning to fly to Sun 'n Fun, don't forget to read the 2013 Sun 'n Fun Notice to Airmen (NOTAM) available at www.faa.gov/air_traffic/publications/notices.

SUSAN PARSON

Finding Fixes for the Flyers

The Evolution of Error Management

There was a time when major aircraft accidents were, unfortunately, much more common than they are today. Investigators and regulators tended toward an approach that some call "find, fix, and fly:" **find** the cause (often a mechanical failure), **fix** the problem (improve the machinery), and **fly** the airplane (resume normal operations). The cycle would start anew with the next accident.

With continuously improving technology, the number of accidents attributed primarily to mechanical failure decreased over the years. Having thus plucked the proverbial low-hanging fruit, investigators, regulators, and researchers turned their attention to finding fixes for the flyers — in other words, to reducing human error as a primary or contributing cause to aviation accidents and incidents.

In a paper called *The Evolution of Crew Resource Management Training in Commercial Aviation*, University of Texas at Austin researchers Robert Helmreich, Ashleigh Merritt, and John Wilhelm trace the evolution of error management efforts through the five generations summarized below. Though error management efforts were initially directed to part 121 air carriers, general aviation (GA) operators — pilots, instructors, mechanics — can clearly learn and benefit from these concepts.

First Generation

Until 1981, when a major part 121 air carrier pioneered the concept and practice of cockpit resource management (CRM) training, aviation was still mired in the "captain-is-god" culture that the fledgling aviation industry had adopted from the mores of nineteenth century mariners. Driven in part by NTSB findings on the dangers of captains' authoritarian attitudes and co-pilots' lack of assertiveness, early CRM incorporated training on individual styles, and effective leadership and management techniques.

Second Generation

By the late 1980s, most U.S., and many international airlines had adopted and implemented CRM training for flight deck crews. As these programs gained acceptance as an ongoing component in flight crew training and line operations, airlines began to recognize the need to include cabin crew members. The name changed from *cockpit* resource management to *crew* resource management, and the programs evolved from a focus on management to one on team concepts and overall situational awareness.

Third Generation

The nature and scope of CRM continued to expand in the 1990s, with a new focus on the influence of organizational culture and human factors, including those arising from the increasing use of automation. Air carriers also began to develop CRM programs for check airmen, training personnel, maintenance workers, and dispatchers.

Fourth Generation

The introduction of the Advanced Qualification Program (AQP) in the early 1990s marks another stage in the evolution of error management. Under AQP, a voluntary program, the FAA allows air carriers to develop training programs specific to their individual needs and operations. A condition for AQP authorization is the requirement to have a CRM program that is integrated into technical training. To accomplish this objective, air carriers began to "proceduralize" CRM by incorporating desired behaviors into operational procedures and checklists.

Fifth Generation

As described in the Helmreich paper, "fifth generation CRM" marks a shift from the human resource and team management focus back to error management, which was the stimulus for CRM's initial development. In this iteration, sometimes called "Threat and Error Management" (TEM), there is an explicit recognition that, since human error is inevitable, the focus must be on managing and mitigating the impact of those errors we cannot avoid.

Susan Parson (susan.parson@faa.gov or @avi8rix for Twitter fans) is editor of FAA Safety Briefing. She is an active general aviation pilot and flight instructor.

FREDERICK E. TILTON, M.D.
FEDERAL AIR SURGEON

If You Haven't Seen It, It's New To You!

You've probably heard the above marketing pitch before, and while true, it does seem to ring a bit hollow. Two years ago I mentioned our human factors video series in this column. I bring up this and the aforementioned pitch because our video library is now on FAA TV. All of those videos are now part of the collection at www.faa.gov/tv under the aviation tab and the Airman Education section. Created by our folks out at the Civil Aerospace Medical Institute (CAMI), these videos provide you with an informative, and hopefully interesting, viewing experience on a range of topics. They are all free; all we ask is that you spread the word.

Being part of this new platform allows you to not only view these videos online, but also to share them with friends and colleagues, and download them to view later, perhaps at times when you don't have an active internet connection.

Top Picks

I want to highlight a couple of videos that are of specific interest given the topics of this issue. First is "The History of CRM." This video covers some of the basic underlying concepts of Crew Resource Management (CRM) and how the theories behind it were developed. It also addresses what caused its urgent need by highlighting the critical accidents that helped advance CRM from academic theory in the 1970s to a way of life in today's air carrier world. As the video points out, unfortunately, most of those lessons are paid for in blood. Even something as trivial as a light bulb can and has cost human lives. But through these losses we've developed the system we have today, which, while not perfect, is much better than what we had before.

The second video I want to talk about is "Risk Management." Now, before you roll your eyes, remember that risk management has become a vitally important tool for pilots. Through the history of aviation we've continually improved our safety record by focusing on key aspects. First it was the machines themselves. Early airplanes were notoriously unreliable, and unreliable in more than just an inconvenient way. They had a tendency to have catastrophic mechanical failures. By the 1950s it was our Air Traffic Control system that needed immediate attention. In the 1970s it was our cockpit culture that needed the help of CRM. Risk management is a systematic approach to identifying risk, assessing its probability and severity, and determining a mitigation strategy.

As the video points out, this is a particularly difficult task in general aviation because you don't have a safety or operations department to lean on for an independent risk assessment. You also don't have a dispatcher reviewing weather and preparing a flight plan. Instead, the pilot must perform all these roles.

Please check out these videos and all the others as well, and let us know what you think. Is there a topic we haven't covered that you'd like to see? Please let us know. We're always looking for feedback.

Frederick Tilton, M.D., M.P.H., received both an M.S. and an M.D. degree from the University of New Mexico and an M.P.H. from the University of Texas. During a 26-year career with the U.S. Air Force, Dr. Tilton logged more than 4,000 hours as a command pilot and senior flight surgeon flying a variety of aircraft. He currently flies the Cessna Citation 560 XL.

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FAA Safety Seminars & Workshops

SUN 'n FUN International Fly-In & Expo

LAKELAND | FLORIDA

APRIL 9-14 2013

	8:30 – 9:30	10:00 – 11:00	11:30 – 12:30	1:00 – 2:00
Tuesday April 9, 2013	**Is Your Aircraft Talking to You? Listen!** Cathy Gagne Report Writer / Analyst NTSB	**Safety From an Insurance Perspective** Mike Adams Vice President of Underwriting AVEMCO Insurance Company	**Prevent Aerodynamic Stalls at Low Altitude** Paul Cox Senior Air Safety Investigator NTSB	**Why Wise Pilots Choose WINGS** Bryan W. Neville FAA Safety Team Program Manager
Wednesday April 10, 2013	**Flight Services: What's New— What's Coming!** Jim Derr & Mike Glasgow Lockheed Martin	**The BIG Three An In-depth Analysis of GA Accidents** Tony James FAA, Air Safety Investigator	**#1 Reason GA Aircraft are Intercepted & How to Avoid it.** Lt Col Kevin "Big Jim" Roethe NORAD	**Maintenance Related Accidents** Albert Kimball FAA Safety Inspector (Retired)
Thursday April 11, 2013	**Reduced Visibility Requires Vigilance** Tim Sorenson Air Safety Investigator NTSB	**The Kings on Practical Risk Management** John & Martha King King Schools	**The Human Component in a Mechanical System** **Kristi Dunks** Senior Air Safety Investigator NTSB	**Personal Responsibility for Flight Safety** Aaron Sauer Senior Air Safety Investigator NTSB
Friday April 12, 2013	**To Err is Human: Managing the Mistakes We Make** Susan Parson Editor, FAA Safety Briefing	**Airmen Medicals** Dr. James R. Fraser FAA Deputy Federal Air Surgeon	**Charles Taylor and Wright Brothers Award Ceremony** Ken R. Kelley FAA Aviation Safety Inspector	**Meet The FAA** Douglas R. Murphy, FAA Regional Administrator Southern Region
Saturday April 13, 2013	**Why Wise Pilots Choose WINGS** Bryan W. Neville FAA Safety Team Program Manager	**Flight Services: What's New— What's Coming!** Jim Derr & Mike Glasgow Lockheed Martin	**Loss of Aircraft Control During Takeoff and Landing** Earl F. Weener, Ph.D. Board Member NTSB	**Town Hall with Congressman Sam Graves (R – MO 6th District) U.S. House Transportation Subcommittee on Aviation**
Sunday April 14, 2013	**FAA Careers in Aviation**	**Commercial Airline Passenger Safety & You** Brent Harper Southwest Airlines		

Flying to Sun 'n Fun this year?
If so, you will need to follow this link
http://qrs.ly/w62yk51
or scan this QR code to download the latest Sun 'n Fun 2013 NOTAM.

Icons indicate availability of AMT, WINGS Award Credit, & WEBinars
Click for more information on electronic version.

R-3.0.0a

Official FAA Forums are held at the **FAA Southern Region Safety Center** located in the middle of the exhibit area at the corner of Laird Drive and Sun 'n Fun Drive.

The FAA Center opens daily at 8:00 a.m. and the FAA Exhibits open daily at 9:00 a.m.
Schedule is subject to change;
for updates scan the QR code at the right or go to: http://qrs.ly/3o2wzuf

Become a part of the FAA Safety Team, go to FAASafety.gov for more information.

Ask Medical Certification

COURTNEY SCOTT, D.O.
MANAGER, AEROSPACE MEDICAL
CERTIFICATION DIVISION

Q: I currently have authorization for special issuance due to a diagnosis of Meniere's disease. It expires April 30, 2014. My AME may issue another medical in April 2013 with favorable reports from my attending physician. I have had no symptoms now for several years. I have been diagnosed with prostate cancer however, and will be seeing a surgeon for possible removal. I am assuming it will be removed and hopefully my situation will have a favorable outcome. I will self ground myself once that occurs. I believe current FAA policy requires that I wait at least six weeks before I provide the FAA with a waiver request. As for the specifics the FAA will need (as I understand it): the operative report, pathology report from the procedure, a current status report from the treating urologist that addresses any complications and treatment, and a current PSA level. Do I do this through my AME, the Regional Office, or direct to Oklahoma? What will happen to my current authorization and/or will they be combined into one authorization? What will the likely authorization date be?

Send your questions to SafetyBriefing@faa.gov. We'll forward them to the Aerospace Medical Certification Division without your name and publish the answer in an upcoming issue.

A: You are well informed as to what we currently need. You are correct in that you must ground yourself. The information you list above is exactly what the FAA needs. My recommendation is that you take this information to your AME. In the very near future, the prostate cancer condition, if it is uncomplicated, will not require special issuance.

Q: I have a special issuance of a third-class airman medical certificate due to having a stent in 2008. Recently I ceased operations because of diagnosis, surgery, and ongoing treatment for vocal cord cancer. I am taking Plavix, Ramipril, Lipitor, and aspirin, but I am not taking Prilosec (delayed so as not to interfere with Plavix). Upon completion of my treatment, I will furnish all documentation. If the treatment is successful, is it possible for me to obtain continued special issuance or other third-class privileges?

A: There is a very good possibility you will be able to qualify for either special issuance and, if there is damage to your vocal cords as a result of the cancer treatment, you may need to perform a Medical Flight Test to demonstrate the ability to adequately communicate. The latter would result in a Statement of Demonstrated Ability (SODA). The FAA would continue to follow your coronary artery disease as it has been doing.

Q: My background is that I have Multiple Sclerosis and I am currently taking Gilenya. I know you have addressed this before, but I have follow-up questions regarding MS and Gilenya/Tysabri medications. Right now it seems as though neither of these is compatible with safe flying, but I was under the impression that the FAA evaluates new drugs after they have been on the market for a year or so. Is this accurate? If so, and since both of these medications have been on the market for this long, have these drugs already been evaluated? If not, is there a plan to evaluate one or both of them? Does taking one of these medications immediately discount a potential pilot from acquiring a medical certificate?

A: Natalizumab (Tysabri is the brand name) has been approved for use by the FAA but there are new findings that are of concern. Specifically, the FDA has posted warnings about a condition called Progressive Multifocal Leukoencephalopathy (PML) that has us concerned. At present, we are still approving this medication if certain conditions are met. Fingolimod (Gilenya is the brand name) was approved by the FDA in late 2010. You are correct that we generally will consider a medication one year after FDA approval. However, there are reports of significant cardiovascular events with fingolimod that have us concerned. At this point in time we have not approved Gilenya for use by pilots.

Courtney Scott, D.O., M.P.H., is the Manager of the Aerospace Medical Certification Division in Oklahoma City, Okla. He is board certified in aerospace medicine and has extensive practice experience in civilian, and both military and non-military government settings.

SABRINA WOODS

GET-HOME-ITIS

The Keys to Treating an "Airborne" Disease

Well, here you are, sitting in the back of an ambulance as it carefully picks its way through the rutted, muddy cow pasture from which you were retrieved. You watch as a medical technician dutifully takes your vitals and assesses your overall status. You are pretty well off, considering. You escaped with a bumped head, and some minor cuts and bruises — the largest being an ugly purple thing above your left knee where it hit the instrument panel during your rather abrupt "landing." Your beautiful Beechcraft Bonanza, however, has not fared so well. It lies in a heap, having been knocked from the sky only an hour earlier.

How did you get here? Let us rewind the clock a bit and go back to before the *dénouement* — a literary term for the outcome of a dramatic sequence of events. In this case it was the moment when things went sour.

Mental Conversations

"If that other guy made it, then so can I!"

"I'm almost there, let's just do it and get it over with."

"I don't want to divert — too much work."

"I've done this before, I can do it again."

"I can handle this. I've got 20 years of experience on my side."

"I'm so tired,

I JUST WANT TO GET HOME!"

Have you ever found yourself uttering these phrases in the back of your head while flying — maybe even aloud to a passenger, or to no one at all? Likely it was at the onset of a particularly harrowing situation that gave you enough pause to start a cycle of rationalization. It could have been anything from flying VFR into IMC, to trying to execute an unstable approach. Regardless of what got you into the hairy situation, you had some decisions to make.

Decision-making is a pretty complicated process broken into many stages in order to effect change. First you have to figure out that something is amiss and then determine if you need to act or if you would rather adapt to it. Once you choose the most desirable outcome, you then identify which actions will successfully put things back to right. Lastly, once you do whatever it is you decided to do, you then evaluate whether or not it worked. Sometimes this requires beginning the cycle all over again if it didn't end up the way you wanted it to.

This might seem really drawn out, but, in reality, decision-making can happen in a split second, or it can take a more systemic, deliberate path. Aeronautical decision-making tends to be a hybrid of both.

Many Aliases, Same Danger

The study of human factors in aviation has grown exponentially since its World War II days. As a result, accident and mishap analysts have realized that most incidents occur as a result of human error, rather than mechanical failure or external hazards. Some of the better known human factor categories are fatigue, poor communication/CRM, compartmentalization, and disorientation. In this article, we will focus on get-home-itis, otherwise known as fixation.

Get-home-itis is a funny sounding colloquialism, but the danger behind it is very real. It is when the desire to get to a destination overrides logic, sound decision-making, and basic instinct. This urge to push on regardless of the data telling you that it might not be the best decision can often result in

An aircraft after a thunderstorm encounter.

Photo by David W. Cox, Fairbanks FSDO

mishap, and it's a prevalent issue for the general aviation (GA) community.

Get-home-itis struck the pilot who, after filing IFR with a controller, was notified that inclement weather was on the way. He acknowledged, pointed his plane down the runway, and initiated takeoff. In all his haste to get home, he never made it.

Then there were the football fans who, in their quest to make it to the big game, deserted their aircraft in a field after a mechanical issue forced them to crash-land. Instead of alerting officials and getting checked out by a medical facility, the group hailed a cab and went on their way to the game, leaving local officials scratching their heads when they finally arrived to the vacated scene.

Abandoning the scene of an accident notwithstanding, one must also wonder if the rush to get to the event might have trumped a sound preflight airworthiness check. This is an example of get-home-itis' equally evil twin, get-*there*-itis. The phenomenon takes on many other aliases: press-on-itis, hurry-home syndrome, and goal fixation, to name a few. They all result in the same willful determination to push through regardless of the results.

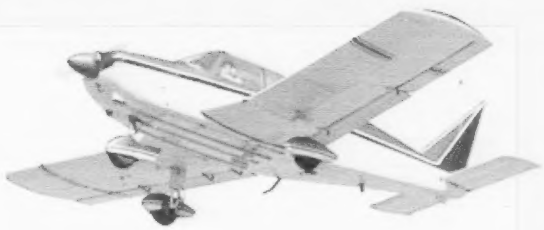
Anatomy of an "Itis"

The Go/No-Go Game

The scenario: You've done it! You managed to score tickets to the big game — seats so close you will be able to feel the spray from the celebratory "Gatorade dunk" at the very end. You will be treating your teenager and his best friend to the festivities.

It isn't a long flight — just under two hours from your home base at Manassas to the airport at Virginia Tech. It isn't a route you are terribly familiar with, but it has been well-traveled by other members of your club and nobody has described it as a big challenge. Your Piper Cherokee Six is equipped with an approach-capable IFR GPS. You also have a standard navigational radio that has glideslope, and a hand-held GPS with weather datalink. In addition, you have a shiny new iPad complete with your favorite electronic flight bag app. You are instrument-rated and legally current, but you haven't flown in instrument meteorological conditions for quite a while and it's been ages since you made an actual approach in IMC.

When you did your initial flight planning a few days ago, the weather was forecast to be colder than it typically is for this time of year. Your Cherokee Six is not approved for flight into known icing conditions, but no problem since it is — or was — VFR weather. On game day, you find that it's VFR at Manassas, but IFR at Virginia Tech. Weather en route starts with VFR, falls to MVFR, and then to IFR nearer to Blacksburg. A review of the TAFs, though, indicates that conditions are supposed to improve to VFR by your ETA. You're a mite uneasy about these conditions, partly because you



lack recent experience operating in IMC, and partly because the combination of freezing temperatures and visible moisture could lead to icing conditions in flight. If the TAFs prove overly optimistic, you might find yourself in somewhat challenging conditions later on. You briefly consider pulling the plug on the flight, even though it's too late to get there in time by driving. But one look at your teen's eager face makes you dread having to disappoint him. And, admittedly, you don't want to look like a wimp in front of your teen and his best friend.

So off you go. As expected, the weather at departure is cold but clear and sunny. As you fly south, though, the clear skies gradually become murky, and then milky. You start to realize that it's difficult to see straight in front of you but you can still see the ground when you look straight down. That's still VFR, right? And anyway you can always turn around and head back to better weather.

But … do you? Every mile you fly is an additional investment in the idea of getting to your destination. Just a few more minutes and you can start descending to land. You tune in the ATIS, only to learn that it's still IFR, which means you'll have to shoot an approach in IMC to an unfamiliar airport and with challenging terrain.

What would you do?

In addition to defining human factor errors, researchers have also tried to understand why it is we do the things we do. What motivates experienced, safety-conscious pilots to make poor decisions or invite unnecessary risk? And why does it seem to happen often, despite the educational materials out there warning us about the peril? It is important for us to understand the "why" if we are to avoid falling prey to it.

With get-home-itis, the focus is so intense, it seemingly comes at any cost. It can be self-generated or externally imposed; like wanting to make a loved one's social event. We will ignore data contrary to our own plans. We will disregard warnings from outside resources such as air traffic control and weather applications. Even more alarming, we will dismiss our inane "Spidey sense" — that feeling we get when we know something is wrong, or that danger is near.

Patience is essential to survival, and hindsight can be a real devil.

It doesn't just happen in flight, either. I can recall times when I have been so focused on getting to a destination while driving, especially here in traffic-heavy Washington, D.C., that I took more, ultimately unnecessary risks in order to achieve my goal. Perhaps I was running late. I might have sped. I might have cut just a bit too closely to that Suburban in the adjacent lane in order to pass another vehicle. I might have gunned it rather than slowed at a yellow light. Each of these decisions could have had costly consequences and, in reality, taking my time and arriving safe and sound should have been my true focus.

Does any of this sound familiar? If so, you too might have fallen victim to an *itis*, and it isn't hard to see how these behaviors might transfer to the cockpit. The "why" is because we simply want to get there, and a host of reasons act as validation for this. We may feel that we have already invested too much to turn back or change plans. We may argue that our experience and flight prowess will surely prevail. We may just wish and hope for the best, and feel that that serves as enough reason to keep going. What we don't realize is that in doing this — in *rationalizing*— we have passed up much safer opportunities.

Lower Risk ≠ Less Desirable

The best way to combat the phenomenon is to study up on it; recognize that it exists and that you might be susceptible to it. Articles such as this and others published by aviation and safety forums are available to help you understand the process a bit better. Check out the scenario in the sidebar on page 11. Give it a read and surmise for yourself; what would you do? The point is to get you thinking about it. Education and awareness go a long way in preventing a mishap.

So does data collection. This is a key part of flight preparation. Make sure that all essential information for your flight is available at your fingertips if needed and that your charts are up to date. Ensure that your destination is ready to receive you. Evaluate your aircraft to make sure you have the fuel required should diverting be necessary, and review anti-icing procedures germane to your aircraft. And if there is a weather report, NOTAMs, or pilot cross-tell to be had, heed it!

Next, always have a contingency plan when you go out to fly, because let's face it, just because you *intend* for something to go a certain way doesn't mean it's going to happen — particularly when Mother Nature is involved. Before you take off, identify potential hazards en route to your destination. Determine your personal threshold — the point that your skill, experience, and that "Spidey sense" meet their no-go limit. Doing this beforehand goes a long way in decreasing the inevitable stress having to deviate can bring later.

The best time to form a Plan B is before you need to use it. Then once in the air, if plans change, take the necessary time to set up for a new approach and proceed already having an idea as to what it is you want to do.

In conclusion, lower risk does not necessarily equal less desirable. Yes, it might equal more work: more paperwork; an unexpected overnight stay; a more serpentine route; an aborted landing; or a go-around. But the fact of the matter is that these lower risk options are not less desirable, especially if the result can be the difference in arriving safe and sound. Patience is essential to survival, and hindsight can be a real devil.

Back to you and your beached Beechcraft; you admit it — you were in a hurry to get home. You had promised you would be there for your son's first time in net for his high school varsity hockey team, so you took some risks. Your buddy warned you that the weather was getting rough out towards your destination, and your favorite weather app on your tablet also noted winds in excess of 20 knots with potential for downbursts. You remembered an old CFI had once warned against hurrying off to fly when

continued on page 26

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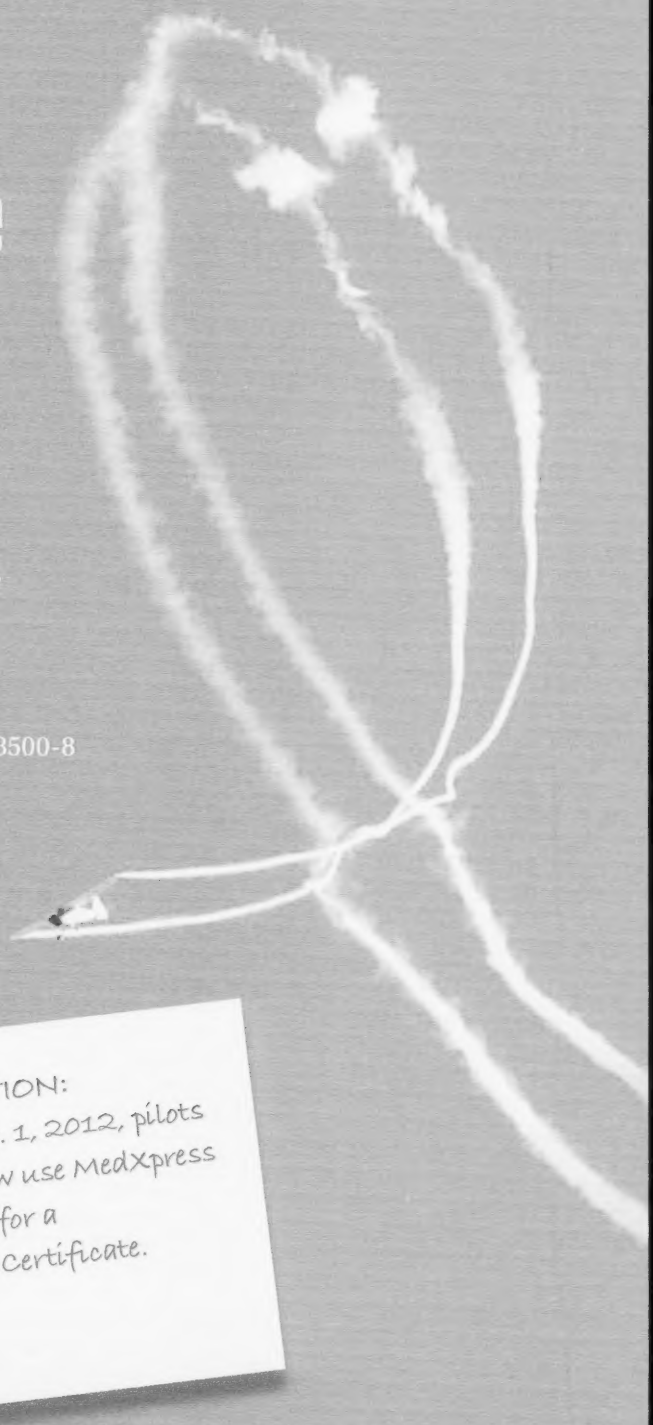


Sprouting New WINGS

Revamped Proficiency Program Gets to the Core of GA Safety

BRYAN NEVILLE

The WINGS Pilot Proficiency Program is the FAA's recurrent training program for general aviation (GA) pilots. Perhaps you've had experience with it in one of its earlier — and admittedly antiquated — iterations. Or, maybe you're new to aviation and have overheard bits and pieces of what WINGS is from an instructor or at a seminar.

In either case, you owe it to yourself to visit (or revisit) the new and improved WINGS program. In addition to several look-and-feel changes that enhance the user experience, the program has also been updated to focus more on the key safety issues that affect you as an airman.

Interested? Then allow me to show you what a new pair of WINGS can do for you.

What's it About?

The bottom-line mission of WINGS is fairly simple: reduce the number of GA accidents. To accomplish that objective, WINGS employs an assortment of targeted education and training opportunities to help pilots apply the principles of aviation risk assessment and risk management. By following the program requirements available at FAASafety.gov, you'll take away important life-saving strategies and skills from a combination of flying- and knowledge-based tasks. Successfully completing the activities allows participants to earn credits towards a Basic, Advanced, or Master set of WINGS.

WINGS activities are tied directly to those topics that are most often associated with common pilot errors, lack of proficiency, and in some cases, faulty knowledge. To get a more thorough understanding of these causal factors, the FAA conducted a review of all aircraft accidents in the United States over a two-year period. This extensive review resulted in a list of six accident causal factors by aircraft category and class, which appeared most often in accident reports.

Factoring it All In

Each of the six causal factors identified are addressed in the training requirements for WINGS. For example, to satisfy the requirements for an activity that covers aeronautical decision making (ADM), pilots may be asked, after completing an online course covering general ADM, to discuss with their instructor the decision-making principles associated with safe airport runway/surface operations.

For the purposes of the WINGS program, the six accident causal factors have been broken out into three knowledge and three flight areas as follows:

Knowledge Topics

1. Aeronautical decision making, including runway safety issues
2. Performance and limitations, including loss of control issues
3. Preflight planning, risk management, and fuel management

Flight Topics

1. Takeoffs and landings
2. Positive aircraft control, including loss of control issues
3. Basic flying skills

Program requirements, which include specific subjects and flight maneuvers from the appropriate FAA Practical Test Standards (PTS), are established for all categories and classes of GA aircraft. Pilots are encouraged to participate in activities tailored to the aircraft they typically fly and in which they wish to demonstrate flight proficiency. And while many tasks are pre-selected for WINGS credit, there are a number of activities a pilot may choose based on their individual needs. Naturally, all training must place special emphasis on safety of flight operations. And to promote standardization, proficiency must be demonstrated to an applicable standard, such as PTS.

Mastering the Basics

Although you may complete as many phases as you wish, WINGS only requires the completion of one phase at the Basic level every 12 months to remain current in the program. However, some are just not satisfied with accomplishing the bare minimum.

For this reason, three levels were established — Basic, Advanced, and Master — with phases within each level. Participants can earn as many phases in each level as they wish by accomplishing each of the corresponding knowledge and flight requirements. Each level, accompanied by an increasingly higher phase number within each level, indicates the pilot's commitment to ongoing and consistent training.

Each of the three levels covers knowledge areas and skill sets that have been noted in accident reports; however, the Advanced and Master levels require a progressively higher proficiency standard. Primary accident causal factors are addressed at the Basic level, while additional causal factors are addressed at the Advanced and Master levels.

Level With Me

The Basic level is designed for pilots who want to establish a recurrent training program that will provide a higher level of proficiency than merely preparing for a normal flight review, and generally requires the use of the Private Pilot PTS. (An airman holding a sport or recreational pilot certificate may use those standards at the Basic level.) In addition, because only the Basic level addresses primary accident causal factors, every pilot is required to complete a phase at the Basic level at least once every 12 calendar months. This helps ensure awareness of accident causal factors and possible mitigation strategies. Keep in mind that this list may change periodically, reflecting the dynamic nature of accident causal factors and FAA Safety Team (FAASTeam) emphasis areas.

The Advanced Level is for pilots who want a training program that will take them a step above the Basic Level. It affords you the opportunity, in concert with your instructor, to tailor the training to fit more specific needs. The performance standards at the Advanced level of WINGS are generally based on the commercial pilot standards.

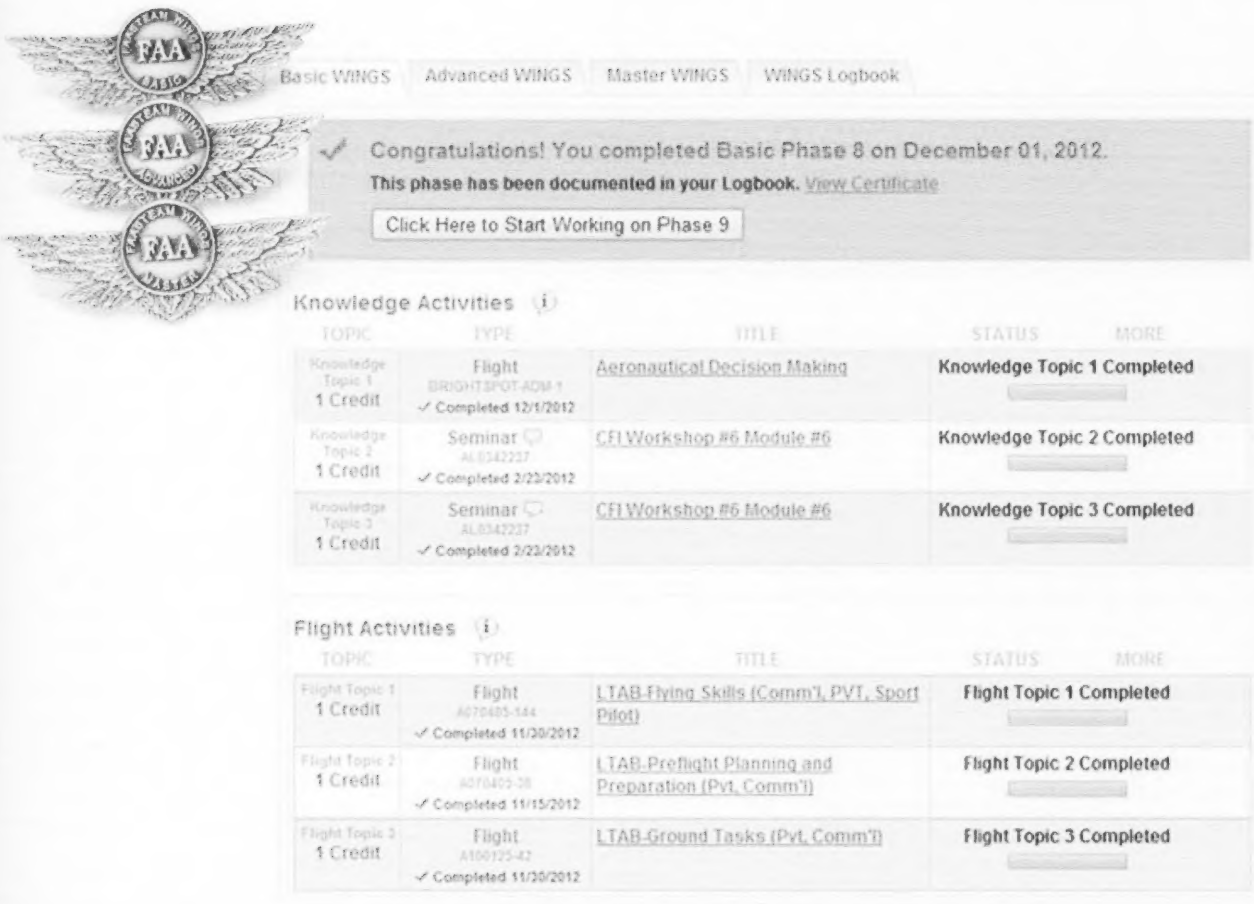
The Master level provides even more flexibility for specialized training. While this level often requires the use of higher PTS standards, it will also allow for the addition of specialized equipment and flight environment training scenarios. It requires using the Commercial or Airline Transport Pilot (ATP) PTS, and sometimes the Certificated Flight Instructor (CFI) PTS and the Instrument Rating PTS (if one is available), for the category and class of aircraft used.

The WINGS program is designed so that pilots are exposed to six topic areas — three knowledge topics and three flight topics — to address the primary accident causal factors that are reported most often during accident investigations.

While many pilots will be satisfied with their accomplishments at the Basic level, the Advanced and Master levels are available for pilots wishing to demonstrate a higher level of skill and proficiency. If you wish to obtain the Advanced or Master level, remember that pilots must simultaneously complete or already hold a current phase at the next lower level.

Here are some interesting metrics since the automated program was launched in 2007 that help gauge the success of WINGS:

- 28,400 phases of WINGS completed (16,200 earned at the Basic level)
- 183,000 users who have earned at least one WINGS credit
- 95,000 flight activities completed
- 361,000 WINGS credits earned by attending a seminar
- 430,000 WINGS credits earned by completing online courses



Suffering from Proficiency Deficiency?

One of the reasons WINGS credits expire after 12 calendar months is that we simply want GA pilots to stay up-to-date with the knowledge and skills that will keep them flying safely on a regular basis. One year has been determined to be the most advantageous timeframe and also the accepted recurrent training period for many commercial pilots worldwide.

After you earn enough credits to complete a phase of WINGS, you never lose that phase. However, knowledge and proficiency can fade over time, hence, the recurrent training requirement of the WINGS program. We encourage pilots to earn another phase of WINGS at the Basic level by renewing their knowledge and skill at least once every 12 calendar months.

One other important detail about earning a phase of WINGS is that it allows the pilot an alternate method of meeting the requirements of the flight review regulation in Title 14 Code of Federal Regulations (14 CFR) section 61.56. While we feel this is a strong incentive to participate in the program, we prefer to place the emphasis on the knowledge and skill learned and/or retained, and not on the reward of a flight review.

Sprout Your WINGS Today

The WINGS program provides the opportunity, the structure, and the recognition for pilots to continue their aviation education. Check it out today and see how WINGS can help you develop a personal roadmap to greater aviation safety.

Bryan Neville is a FAA Operations Inspector presently assigned as the outreach program manager for the FAASTeam.
Contributing to this article was Tom Hoffmann, managing editor of FAA Safety Briefing.

Learn More

FAA Advisory Circular 61-91J, *WINGS–Pilot Proficiency Program*
www.faa.gov/documentLibrary/media/Advisory_Circular/AC%2061-91J.pdf

WINGS User's Guide
www.faasafety.gov/documents/Wings_Manual.pdf

Federal Aviation Administration

No More Flight Reviews

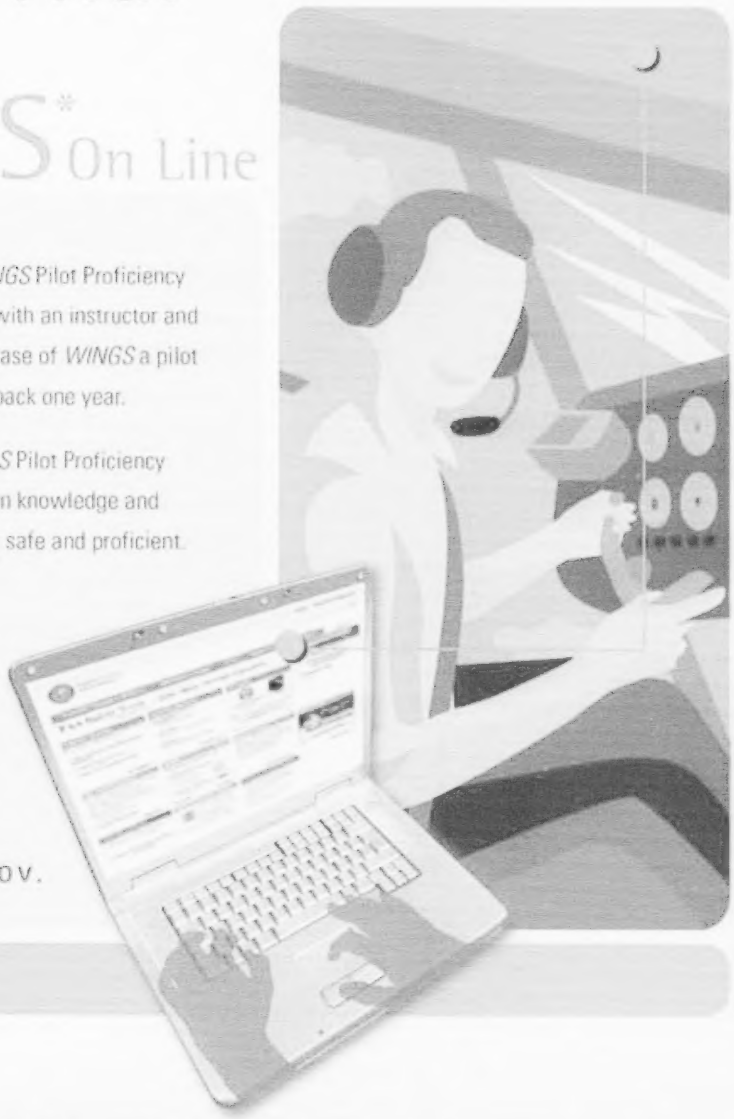
Stay Current With WINGS* On Line

Pilots who participate in the *WINGS* Pilot Proficiency Program can choose to fly often with an instructor and avoid flight reviews. For every phase of *WINGS* a pilot earns, their flight review moves back one year.

But, more importantly, the *WINGS* Pilot Proficiency Program offers many ways to earn knowledge and flight credits that help pilots stay safe and proficient.

- Seminars
- Courses
- Flight Maneuvers

Check out the details on
www.FAASafety.gov.



* *WINGS* Pilot Proficiency Program

www.FAASafety.gov *Your Aviation Safety Web Site*

JAMES WILLIAMS

Setting Priorities

Aviate, Navigate, Communicate – and Evaluate Risk

Humans aren't very good at evaluating risk. It's a sad truth that contributes to the potential danger of aviation. One problem is that real danger, or risk, is different from perceived risk. We tend to either over or under "value" the risks we face. The authors of *Freakonomics* explored this topic extensively in the context of parenting. They compared the risks of allowing children to play at a home with a gun and at a home with a swimming pool. What they found is counterintuitive: the home with the pool was more dangerous, because swimming pools accounted for more child deaths a year. This isn't to say that the home with the gun is without risk. The comparison merely illustrates that the risk from the pool is greater. Most people would think that the opposite was true, however, because we tend to overvalue the risk posed by the gun (remembering of course that there is still risk) and undervalue the risk from the pool.

Now let's apply this approach to aviation. Which activity poses greater risk: an hour of pattern work, or an hour-long cross country? You might think it's the cross country, but statistics would argue you're wrong because the majority of accidents occur during the takeoff/initial climb and approach/maneuvering/landing phases of flight. Pilots on a cross country will spend most of their time in the relatively safe en route phase. As in the pool-vs.-gun example, both activities carry risk but one is statistically more dangerous than the other. The hour of touch-and-go landings will occur entirely within the higher risk phase of flight. And consider this number: those higher risk phases of flight account for 77 percent of accidents, but only 17 percent of flight time.

So, what can we do? The first step is to focus on priorities and possible outcomes.

Photo by George Soteropoulos

Priorities

One of the earliest lessons in flight training is the aviation order of operations: Aviate, Navigate, Communicate. In priority order, you should: fly the airplane (Aviate), figure out where you are and where you're heading (Navigate), and, as appropriate, talk to ATC or someone outside the airplane (Communicate). It seems so simple, but it's easy to forget when you get busy in the cockpit.

A famous example of failure to follow the established aviation priorities is the crash of Eastern Airlines Flight 401. In December 1972, the crew of a Lockheed L-1011 *TriStar* became focused on the malfunction of a landing gear position indicator light for the nose gear. The plane subsequently descended into the Everglades northwest of Miami, killing 101 of the 176 people on board (two people died more than seven days after the accident). What happened? The crew – captain, first officer, and second officer/flight engineer – had aborted an approach at Miami when the nose gear light failed to illuminate. There was also a company aircraft mechanic in the jumpseat. The flight was vectored away from the airport at 2,000 feet to allow the crew and mechanic to troubleshoot the problem. The captain instructed the first officer, who was flying, to engage the autopilot. The first officer acknowledged that instruction from the captain and then removed the nose gear light bulb. While attempting to replace it, the light jammed. The crew and mechanic continued to work the problem, and eventually both the second officer and mechanic went below the flight deck to physically check the position of the nose gear.

During the distraction of troubleshooting, the aircraft began a shallow descent that, in the darkness, the crew did not detect. In fact, their fixation with the gear light continued, along with conversations with ATC, until seven seconds before impact. At that point, the conversation went as follows:

First Officer: "We did something to the altitude."

Captain: "What?"

First Officer: "We're still at 2,000, right?"

Captain: "Hey, what's happening here?"

Seconds later the aircraft slammed into the Everglades.

In this example, a highly experienced and well-trained crew of three professional pilots (with the added bonus of a company mechanic) failed to follow the order of operations. Not one of the three was actually flying the airplane. They paid attention to navigating and to communicating, but apparently none to flying until seconds before impact.

We've all probably had mechanical issues of one kind or another in our flying career. And, in most cases, we'd be lucky to have the assistance of another pilot, much less two other pilots, to troubleshoot the problem. Despite all the advantages the crew in this situation had, the outcome was still disastrous because the entire crew became engrossed in the mechanical issue and no one was left to keep the airplane in the air. While there were other contributing factors in this accident to be sure, the most critical was failure to aviate.

One of the earliest lessons in flight training is the aviation order of operations: Aviate, Navigate, Communicate. It seems simple, but it's easy to forget when you get busy in the cockpit.

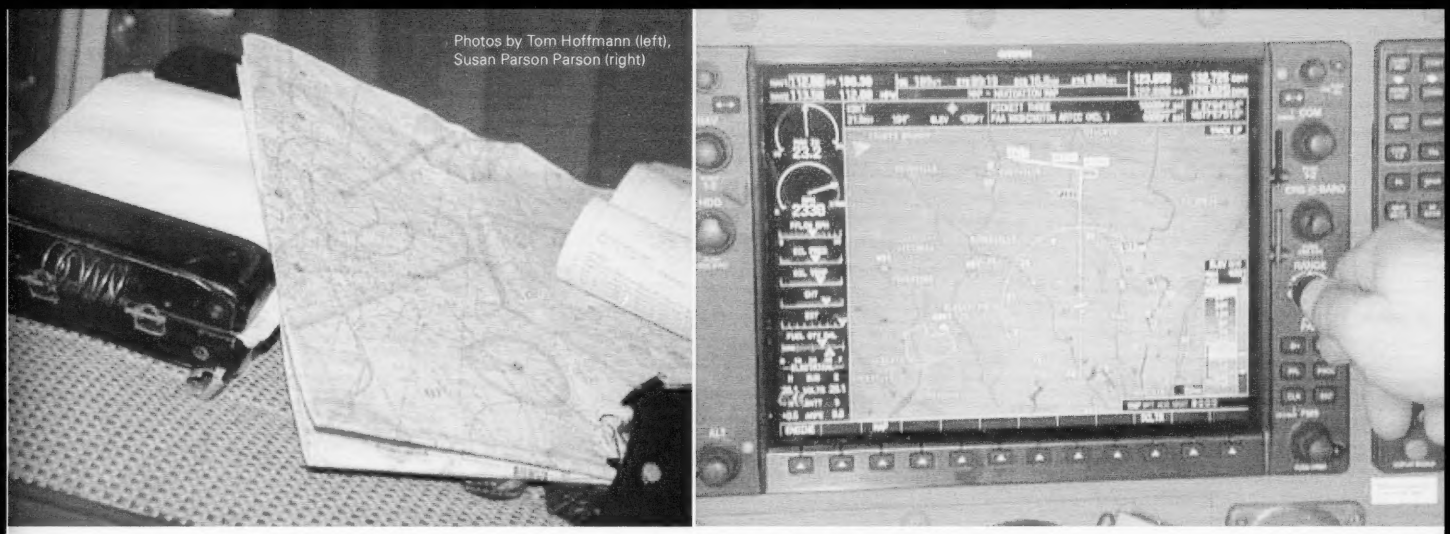
Possible Outcomes

When dealing with an emergency or abnormal situation, the first thing to consider is what outcomes are possible given the circumstance presented. Having options makes it possible to evaluate them and assess how likely they are to occur.

Consider another example, which involves the October 2006 accident of a Cirrus SR-20 in New York City. The Cirrus owner and an instructor were attempting to turn around in the East River corridor. They slammed into an apartment building when they could not complete the turn in the space available. It was essentially an urban box canyon with a "roof" of 1,100 feet, which was the base of the overlying Class B airspace. Unfortunately, the aircraft hit

Air Traffic Controllers are a great safety resource, but your first priority should be to control the aircraft. Here we see Air Traffic Controllers deployed to a remote location to help guide aircraft into Sun 'n Fun.

Photo by J Dean Chamberlain



Photos by Tom Hoffmann (left), Susan Parson Parson (right)

Navigating, whether by electronics, or by chart, should be secondary in your priority system.

the 500-foot tall building around the 300-foot level. The NTSB later concluded that the aircraft was in a 40 to 45 degree bank, when the minimum bank angle to complete the turn would have been 50 degrees.

It's easy to sit at home and say, "I would never do that," and file the accident away as something that happens to other people. But that's not a productive attitude, and it doesn't help improve the system. After all, no pilot gets up in the morning and says, "I'm going to do something stupid that no other pilot would do, and it's going to cause an accident." Instead, let's look at the cultural issues that could have contributed to the pilot's inability to perceive and appropriately evaluate all available options.

Part of the PIC's responsibility for preflight planning and conduct of the flight is to avoid situations that require a choice between breaking regulatory barriers and breaching physical barriers.

The NTSB mentions the problem in its accident report:

> *The pilots may have been concerned about the consequences of inadvertently penetrating the Class B airspace or flying over Manhattan Island. However, in a situation such as this, pilots should place a higher priority on maintaining aircraft control.*

The report goes on to describe how the pilots could have prevented the accident by climbing above the buildings, or by requesting clearance to enter the Class B airspace. But look at the situation from the perspective of a pilot arriving at the north end of the East River exclusion area. You start to turn, but you seem to be running out of room to complete it. What are your options? You can continue with the turn in hope that everything will work out, or you can climb and run wide over Manhattan. So what are the possible outcomes of each of those options?

You might just make it with the first option, or end up in the kind of accident scenario that actually occurred. Taking the second option might give the building occupants a scare, but it would have eliminated the danger. Of course there are likely to be regulatory repercussions, but the accident scenario alternative is far worse.

There is a third option. As the NTSB suggests, the pilot could request permission to transition north until it is possible to make a safe turn. While ATC might be reluctant to grant such a request, remember that the pilot in command holds the ultimate authority and responsibility for safety of the flight. The PIC can declare an emergency and request ATC assistance in finding a place to turn around.

The point of these illustrations is to combine two important concepts: realistic risk evaluation/mitigation, and order of operations. Part of the PIC's responsibility for preflight planning and conduct of the flight is to avoid situations that require a choice between breaking regulatory barriers (e.g., Class B airspace) and breaching physical barriers (e.g., the ground or an obstacle such as a building). But when such a choice must be made, it's important to evaluate the risk, make the best choice for safety of flight, and remember the mantra of Aviate, Navigate, Communicate.

A final thought: if you think you might be in an emergency, then you probably are. Use the PIC's authority and declare an emergency. It's always better to explain your actions from a safe place on the ground than to have the NTSB speculating about them in a report you aren't around to read.

James Williams is FAA Safety Briefing*'s assistant editor and photo editor. He is also a pilot and ground instructor.*

GUY MINOR

Why Do Smart People Do Dumb Things?

The Art of Managing Mistakes

Photo by Adrian Eichhorn

Have you ever noticed how we sometimes take a perverse pleasure in reading articles that detail aircraft accidents? That's not terribly surprising; after all, an accident account is a cautionary tale complete with good guys and bad guys, tragedy and mayhem. You just can't look away!

Another guilty pleasure of accident reports is the ability to heave a sigh of relief because it wasn't you, and perhaps you convince yourself that it could *never* be you. Our natural tendency to make judgments helps insulate us from the tragedy. The unfortunate pilot in the story somehow brought it on himself. He made a dumb move. He was somehow deficient in experience or intelligence. It feels so good to play the superior. It seems right to balance the scales of justice. There is a bad outcome; someone should pay the price.

But is this attitude helpful in making sense of the situation? Before we start assigning blame, perhaps taking a closer look at the tangled relationship that exists between humans and errors can provide us better insight into the "hows" and "whys" of an accident as well as help us understand the reasons behind our own aerial blunders. To be able to fully benefit from the lessons an error can teach, it is imperative to walk in the shoes of the person who made the mistake. Then ask yourself: "Why would an otherwise well meaning, bright individual make this mistake?"

To Err is Human ...

It might help to understand that error is part of the human condition. The design of the human brain hardwires us for practices that lead to success in addition to those that lead to errors. Success is the upside of having a brain, mistakes the downside. The problem is we often have no idea whether to call our actions success or failure until we observe their outcome, and sometimes it is just too late. In considering error, it is useful to note that our brains have two functional modes: conscious workspace and long-term memory.

The good news is that we can learn from errors and, if we recognize them, we can manage and mitigate them before they cause harm.

Photo by Tom Hoffmann

If we encounter a problem we have never seen before, we use the conscious workspace to "noodle out" a solution. The conscious workspace operates in trial and error mode, and it is easy to understand how the trial and error mode might cause error. We try something. If it works, we call it success. If it does not work, we call it error.

If, on the other hand, we encounter a situation we have seen and solved in the past, we retrieve a program or skill from long-term memory to perform that task more quickly. These automatic routines guide much of our behavior because we are very comfortable working in mental autopilot mode. The error trap lurks, though, because if something changes about the context of the behavior during the running of a skill program, we need to alter the program to account for the change. These kinds of changes require us to exit autopilot mode, pay close attention, and then alter the plan to accommodate the change. If we stay on mental autopilot or if we don't focus properly on the change, we might simply miss the change and continue with the old behavior. The problem, of course, is that the old behavior may no longer be appropriate for a new situation. Result: error.

Our natural tendency to make judgments helps insulate us from tragedy. We assume that the unfortunate pilot in the story somehow brought it on himself.

Let's look at a specific example. A man wakes up every morning, climbs into his car, and drives to work. Every morning he takes the same freeway entrance ramp. Now it's the weekend, and his daughter asks him to drive her to a store located just beyond the familiar entrance ramp. As he approaches the ramp, he is deep in conversation. What does he do? He takes the entrance ramp. It is his habit. He doesn't even notice until his daughter asks, "Where are you going?"

Have you ever made a similar mistake? Perhaps you set your coffee mug on the top of your car, and because it is not a common thing to do, it's still there when you drive away. These are skill-based errors. The way our brain processes routines pulled up from long term memory causes these errors.

Managing Mistakes

Human error and human success come from the same psychological processes, so error in itself is not bad. It is the context in which we make the error that makes it so dangerous. Errors made in an unforgiving context like aviation can easily lead to disaster. We cannot change the penchant of people to make mistakes. We can however ask why the mistake occurred, and determine how to address the cause in a systemic (not individual) way. We can structure and manage the system, so it is less likely to promote error, and so it will be more forgiving of error when it does occur.

And we can look within ourselves. It is always smart to learn from your mistakes, but smart pilots prefer to learn from others' mistakes. When reading those accident and incident accounts, though, avoid the smug and superior mindset we so often tend to assume. Consider that the people who made those mistakes are people just like you — people who did not intend to do things that would cause an accident or incident. It's tempting to characterize the person as silly, thoughtless, incompetent, or reckless, but anyone — in fact, everyone — can be adversely affected by a complex, confusing, and stressful context.

The remedy is to focus on the "why," not on the "who." The "why" question deals with influences, which gets to the systemic heart of the matter. And that's when you truly learn why smart people can do dumb things and how you can avoid a similar situation.

Guy Minor is a FAA Aviation Safety Inspector and is currently on detail as a FAASTeam Program Manager with the Western-Pacific Region. Guy is also an adjunct instructor at the Transportation Safety Institute in Oklahoma City where he teaches the Experimental Aircraft Accident Investigation course.

JOHN STEUERNAGLE

Not Your Father's PTS

The Practical Test Standards documents for pilot certification have grown over the years, and one recent addition reflects the idea that physical flying skills are necessary, but not sufficient, for safe operation in the complexities of today's National Airspace System (NAS).

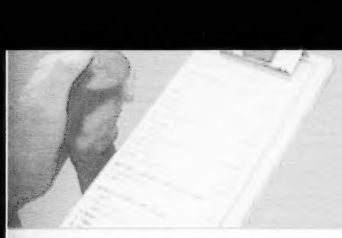
Since June 1, 2012, the PTS has directed examiners to evaluate a pilot's knowledge and skill in single pilot resource management (SRM) throughout the practical test. The principal tool for this evaluation is a scenario that is presented in the preflight discussion and continued through the flight and post flight portions of the test. To prepare for this evaluation, applicants should review the aeronautical decision making (ADM) material in the *Pilot's Handbook of Aeronautical Knowledge*, the *Risk Management Handbook*, and Advisory Circular (AC) 60-22 – *Aeronautical Decision Making*, all available at FAA.gov. The PTS contains additional reference documents.

On a practical test, the examiner will evaluate applicants on six components of SRM:

- *Aeronautical Decision Making (ADM)* — Make sound decisions based on all available information. Be prepared to explain your decision making process in the context of an ADM model such as 3P (Perceive, Process, and Peform), or similar model. Recognize and explain hazardous attitudes that may influence your decisions. Decide upon and execute appropriate courses of action in response to the scenario and any other situations that arise during the test.
- *Risk Management* — Use risk management tools and models to evaluate hazards associated with flight, promulgate strategies and tactics for mitigating those hazards, and monitoring their effectiveness throughout the test. You'll need to use a tool such as the PAVE checklist — Pilot, Aircraft, enVironment, and External Pressures — to explain and evaluate risk elements. You'll also need to explain your personal minimums using a tool such as the IM SAFE checklist — Illness, Medication, Stress, Alcohol, Fatigue and Eating. You'll use weather reports and forecasts to determine weather risks associated with the flight. You'll explain how to recognize, assess, and mitigate risks with the aid of the 5P model — Pilot, Plane, Plan, Passengers, automation Programming.
- *Task Management* — Like circus jugglers keeping balls in the air, pilots must simultaneously manage (and prioritize) tasks required for aviation, navigation, and communication. Automation helps, but it also introduces additional workload, which is why it has its own SRM area. Successful applicants will explain their task prioritization, complete tasks in a timely manner while coping with distractions, and execute all checklists and procedures without increasing workload at critical times.
- *Situational Awareness (SA)* — Pilots must be aware of their position at all times, but effective situational awareness incorporates additional parameters that assess where we are, where we're going, and how we're going to get there. Successful applicants will explain and maintain SA throughout the test. SA is especially important during taxi operations in order to prevent runway incursions.
- *Controlled Flight into Terrain Awareness (CFIT-A)* — An element of situational awareness, CFIT-A places additional emphasis on clearance from terrain. Applicants will use current charts and navigation equipment to maintain terrain clearance. If your aircraft is equipped with a Ground Proximity Warning System (GPWS) or Terrain Awareness and Warning System (TAWS), you'll need to explain and demonstrate its operation. You'll also need to assess terrain clearance when you're planning takeoffs and landings, or diverting from course.
- *Automation Management* — The newest challenge for pilots involves getting the most out of the vast array of automation devices installed on general aviation aircraft. This SRM area requires applicants to be thoroughly familiar with all autopilot and flight management systems on board the aircraft, use automation to reduce pilot workload when appropriate, and maintain the automation equipment in the appropriate mode for the current flight condition.

It's definitely not your father's PTS, but the addition of tasks involved in SRM will help to ensure a lifetime of safe and enjoyable flying.

John Steuernagle is a FAASTeam Program Manager with the Western-Pacific Region.



Checklist

SUSAN PARSON

The "Right" of Spring

When Russian composer Igor Stravinsky debuted his *Rite of Spring* ballet and orchestral work for the spring 1913 concert season in Paris, its advanced composition style nearly caused a "riot of spring" amongst the audience.

Although Stravinsky's work has achieved worldwide acceptance and acclaim in the century since its inaugural performance, its tumultuous beginnings illustrate an enduring reality about the human resistance to change. Notwithstanding the well-worn cliché about change as the only true constant in our ever-evolving world, we kick and scream and dig in our heels whenever someone presumes to "improve" upon things that are familiar. As Stravinsky (like Mozart, Beethoven, and many other composers before him) learned, audiences were familiar with how music "should" sound, and they were outraged by the presumption they might be persuaded to like something new.

It has become a rite of spring to introduce design updates in our March/April issue, perhaps to coincide not only with spring renewal, but also with the true beginning of the aviator's year.

Though we are far from the kind of dramatic avant-garde change that ignited such passion in Paris a century ago, resistance to change (both ours and yours) is always a factor in the magazine team's discussions and decisions about the style and format of this magazine. As longer-term readers may remember, we unveiled the first major overhaul — a significant break with the past — in the March/April issue published in 2008. In the March/April issue for 2010, we made more changes. As explained at the time, we took advantage of changes driven by agency branding requirements to develop a more open cover. Because the magazine's name at the time — *FAA Aviation News* — was no longer an accurate reflection of our mission, we also used this issue to introduce a new and, we think more descriptive, name: *FAA Safety Briefing*.

A Different Rite of Spring

It seems to have become a rite of spring for us to introduce design and other updates in our March/April edition — perhaps because it is consistent not only with the idea of spring renewal, but also with the notion of spring as the true beginning of the aviator's year. Here are some of the changes you may have noticed in thumbing through the March/April 2013 issue of *FAA Safety Briefing*:

Cover: To give you a better "at a glance" idea of what's inside, we have already begun to list two to three article titles and locations on the cover.

Table of Contents: We significantly transformed the inside front cover area to give you a larger and more informative table of contents page.

Department/Column Banners: Sharp-eyed readers will know that we have already been using a different department/column banner style in the FAA Faces department. In this issue, we have aligned the rest of the banners with this design, which gives us more space for content. We've updated the design elements for each department/column banner and, to improve each area's visual identity, we have given each a unique color scheme.

Back Cover: We've already been using QR codes for the magazine's website, which, as reported in the January/February 2013 ATIS Department, now provides links to mobile-friendly versions of *FAA Safety Briefing*. We're adding a QR code for our Twitter handle — @FAASafetyBrief — so you can scan with a smartphone and go straight to our Twitter feed. If you're not already following us on Twitter, we hope you'll take the opportunity to do so.

We hope you will find these design changes to your liking — a "right" of spring rather than a "riot." And, though you can probably expect to see additional design changes in the years to come, we promise that our commitment to serving you as the FAA safety policy voice for non-commercial general aviation is as constant as the northern star.

Susan Parson (susan.parson@faa.gov, or @avi8rix for Twitter fans) is editor of FAA Safety Briefing. *She is an active general aviation pilot and flight instructor.*

SABRINA WOODS

"A Thousand Times Before ..."

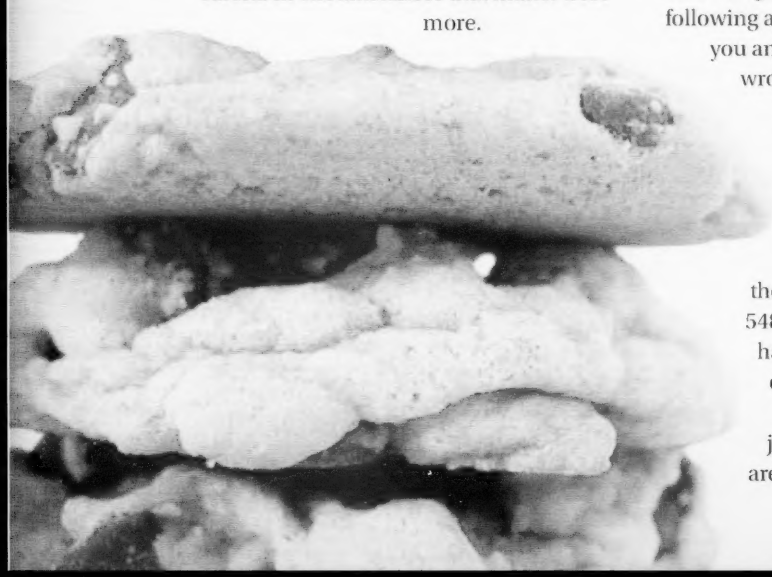
A Look at Complacency in the Workplace

One of my hobbies is baking, and the holiday season gives me a chance to flex my *Iron Chef* prowess and break out the bamboo spatulas and silicone bakeware. A favorite recipe is chocolate chip cookies, and it is one that I do often. So often that I know the recipe cold. So cold that I'm sure I don't need to bother with tracking down the dog-eared recipe card to follow it. *I got this.* I've done this a thousand times before.

Such was my attitude one day in December when I wanted to bring some treats to the office in a goodwill gesture. Approximately one hour after pinches of this, dashes of that, and some vigorous mixing, my cookies came out of the oven. Imagine my horror when I found misshapen, hard little lumps of pale yellow coal instead of the moist, delicious, golden-brown goodness I was expecting. Puzzled and disappointed, I scratched my head until I figured it out. I had forgotten the baking soda.

Although seemingly a minor element of the recipe (one easily overlooked when relying on memory), that half teaspoon of baking soda is an important catalyst in baking. It acts as a leavening agent that keeps the dough tender and moist and, in conjunction with salt, it also acts as a browning agent (hence the pale yellow cookies). So into the trash went my coal, taking a generous chunk of my ingredients — and some of my holiday goodwill.

How could I mess up such an easy task I had done a thousand times before? Though harmless in this case (except to my pride), this little debacle is a good illustration of what can happen if we aren't careful in circumstances that matter a lot more.



"I Got This" Complacency

Many of you recognize complacency as one of the famous "Dirty Dozen" factors that threaten safety. Merriam-Webster defines complacency as self-satisfaction accompanied by unawareness of actual dangers or deficiencies. Human factors theorists define complacency as becoming overconfident in one's work, to the point of assuming that since something has worked in the past, it will work the same way in the future. In other words, if you have done something "a thousand times," why should you look at the technical data to confirm you are correctly installing that oil pump? The answer is, quite simply, because you might make a mistake. And, unlike the cookie conundrum, a mistake in aviation maintenance might not be as easy a fix as throwing it away and starting over.

When complacency kicks in, people often allow experience to guide expectations. We humans like to take shortcuts or skip "unnecessary" steps. We dismiss the discipline of following the proper guidelines and procedures, developing a potentially dangerous mindset that "everything will be ok and nothing could possibly go wrong." These faults compound when complacency meets fatigue in a combination that can be disastrous.

Sweat the Small Stuff

My time in the Air Force afforded me the opportunity to work with some of the sleekest, fastest, and most lethal jets in the world. I can tell you that there is nothing more gut-wrenching than that moment following an aircraft mishap when you realize that you and your team might have done something wrong, or missed something vital.

What we do is important. Yes, it can feel monotonous and mundane at times, but every little detail of what we service or inspect matters. I personally know of a missing flap actuator cotter pin bringing down an F-15E, and in the commercial sector, Air Midwest Flight 5481 serves as a tragic example of what can happen when technicians fail to follow procedures when rigging an elevator cable.

For general aviation, the dangers are just as prevalent. The accident databases are chock full of examples of incorrectly

installed levers, crossed wires, missing locking devices, and inappropriate hardware. I am willing to bet it was correct in the book every time, but somewhere, someone made a mistake. Someone might have even become complacent. In short, someone failed to "sweat the small stuff."

Avoiding this pitfall is pretty easy. Always, always, ALWAYS perform every job according to regulation and procedures. Checklists are your friends — use them! Never work from memory. Always go back and verify your job upon completion. Finally, remind yourself of the dangers of complacency. It exists. We can all be susceptible if we aren't careful, and when that happens, we stand to lose a lot more than a batch of cookies.

Sabrina Woods is an assistant editor for the FAA Safety Briefing. *She spent 12 years in the active duty Air Force where she served as an aircraft maintenance officer and an aviation mishap investigator.*

– continued from page 12

the weather wasn't agreeable — or something like that — but you figured if you could just get airborne, you would outrun the weather and be home in time to catch the last two periods of the game. Despite the warnings and that ominous feeling in your gut, you took off into the iron gray clouds. All seemed well until you started the descent to your destination. Then it happened; the bottom simply dropped out.

As the ambulance makes its way down the highway in the direction of town, you realize several things, the first of which is that you are very lucky to be alive. The second is that you have just learned the hard way what succumbing to get-home-itis can do. The last? You are most definitely going to miss that hockey game.

Sabrina Woods is an assistant editor for the FAA Safety Briefing. *She spent 12 years in the active duty Air Force where she served as an aircraft maintenance officer and an aviation mishap investigator.*

Calling All Mechanics

Keep Informed with
FAA's Aviation Maintenance Alerts

Aviation Maintenance Alerts (Advisory Circular 43-16A) provide a communication channel to share information on aviation service experiences. Prepared monthly, they are based on information FAA receives from people who operate and maintain civil aeronautical products.

The alerts, which provide notice of conditions reported via a Malfunction or Defect Report or a Service Difficulty Report, help improve aeronautical product durability, reliability, and maintain safety.

Recent alerts cover:

- failed landing light and strobe light switches on the Beechcraft A36 *Bonanza*
- failed contact points on a Slick magneto
- cracked exhaust on a Continental IO-550-N engine

Check out Aviation Maintenance Alerts at FAA.gov

U.S. Department
of Transportation
Federal Aviation
Administration
Report Wildlife Strikes
http://wildlife.faa.gov http://www.faa.gov/wireless
USDA

TOM HOFFMANN

GA Safety Makes NTSB's Most Wanted List

Last fall, the NTSB announced its list of top 10 transportation challenges for 2013. For the second year in a row, general aviation (GA) safety made the list. *FAA Safety Briefing* asked NTSB Board Member Dr. Earl Weener about the significance of this list and how it affects the NTSB's safety outreach plans.

What is the purpose of the NTSB's Top 10 Most Wanted List? How are the items selected?

The NTSB's mission is to improve transportation safety, which we do primarily by investigating accidents, conducting safety studies, and developing recommendations to prevent accidents. Since the NTSB has no regulatory authority, we need to advocate for others in government, industry, and the general public to take actions to improve safety. The Most Wanted List (MWL) is one of the NTSB's primary tools for this safety advocacy. Last year the MWL was revamped to focus on the 10 items which the Board Members collectively considered to be high priority safety areas. Each Board Member has two of the MWL items to focus on for the year. Since GA has been an interest of mine for more than four decades, I welcome the opportunity to continue to focus on GA safety for another year.

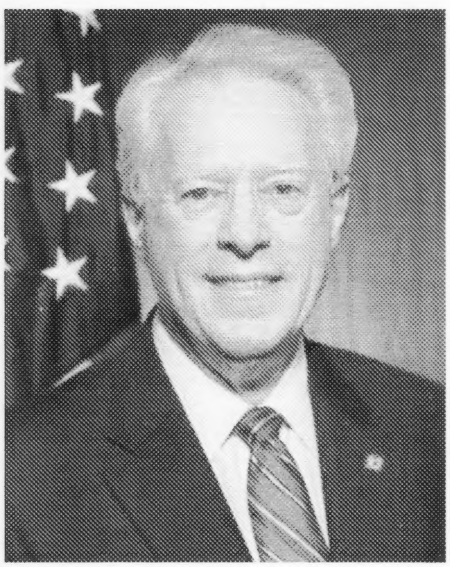


Photo courtesy of NTSB

NTSB Board Member Dr. Earl Weener

What did the NTSB do to advance the issue of GA safety in the previous year?

In 2012, the NTSB:

- Hosted a two-day GA safety forum in which we asked representatives from federal agencies, industry, and academia to share thoughts on how to improve GA safety through improved safety programs, training, and aircraft certification and design.
- Delivered safety presentations at Sun 'n Fun and AirVenture to help pilots learn from the accidents we investigate. NTSB staff also gave presentations at flight schools, flying clubs, aircraft mechanic groups, etc.
- Issued a Safety Alert cautioning pilots about how the actual age of NEXRAD (Next-Generation Radar) mosaic imagery is always older than the age indicated on the display. In some cases, this discrepancy can exceed 20 minutes. The Safety Alert stressed that even small differences between the age indicator and actual conditions are important for safety of flight, especially when considering fast-moving weather hazards.

(Note: Safety Alerts are short handouts — typically a few pages long — that define a safety hazard and provide examples of ways to avoid or mitigate the hazard.)

What are the NTSB's plans for GA outreach in 2013?

We recognize the need to reach out to the GA community directly — not everybody is going to take the initiative to go out and read our accident reports and look for the lessons learned. For 2013, we are planning to issue more GA-specific Safety Alerts, expand our in-person outreach efforts, develop informational videos to highlight GA safety issues, and work with industry to improve our own data collection.

The NTSB staff has been working on drafts of five Safety Alerts that they are planning to present at a Board meeting in March. These Safety Alerts will address some of the most common types of fatal accidents that we discussed in our 2012 forums. These include aerodynamic stalls in visual meteorological conditions (part of the broader "loss of control" category), controlled flight into terrain (CFIT) and spatial disorientation in reduced-visual reference conditions (also part of the loss of control category), and accidents related to system or component failures. Two of the Safety Alerts will address risk management for pilots and mechanics.

Once adopted, these Safety Alerts will be the cornerstone of our GA outreach efforts for the rest of the year. They'll be available in electronic form on our website and as printed handouts at our outreach

events. Their subject matter will be the focus of our outreach presentations at Sun 'n Fun, AirVenture, and others. Like previous Safety Alerts, these will highlight a few related accidents, provide tips for pilots, and direct them toward educational resources that provide more information.

What about those pilots who might not typically attend safety educational events?

Any time there is a fatal GA accident, the local community is greatly affected, and suddenly, over the following days, there is a very intense, localized interest in aviation safety. Many at the FBO, on the ramp, and in the neighborhoods want to talk about it. We'd like to reach out to those communities who are suddenly paying attention. We'd like to a deliver timely, pertinent outreach presentation that not only explains to them the basic investigation process and what to expect, but also delivers pertinent aviation safety information.

Are there any changes in store for data collection and/or analysis?

During our 2012 GA Safety Forum, the Board openly asked industry for suggestions on how we could improve our data collection. Based on what we learned, we decided that we should expand that a bit and host a separate, informal listening session with industry to learn more about what kind of data they would like to see us collect — and what kind of beneficial analysis could be performed if we did collect it. Depending on what we learn, we may be able to launch a one-year pilot study to begin collecting certain data. The pilot study would enable us to see if it's feasible for us to collect the data throughout the course of our investigations.

Do you have any particular advice to share for anyone reading this?

There are a few things that come to mind immediately. First, get some recurrent instruction, preferably each year. Make your Flight Review more challenging by getting instruction on what you know you don't do well, rather than choosing items that are easy or that you know you can perform well.

Second, develop a sense of your personal minimums, whether it be VFR or IFR, that you fly most. Know your limitations. Finally, before every flight identify those things that could pose a threat to your flight in some way. Think about how you would handle each of the potential threats so that should you encounter any of them, you will be prepared.

Tom Hoffmann is the managing editor of the FAA Safety Briefing. *He is a commercial pilot and holds an A&P certificate.*

Learn More

NTSB's Top 10 Most Wanted List
www.ntsb.gov/safety/mwl.html

NTSB Aviation Accident Reports
www.ntsb.gov/investigations/reports_aviation.html

Personal Minimums Checklist
http://go.usa.gov/4XFV

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LEE ROSKOP

What's Trending with Rotorcraft Safety?

The trend in U.S. rotorcraft accidents in 2012 reinforced the message that the International Helicopter Safety Team (IHST), the government, and the rotorcraft industry groups have communicated for years; that is, too many helicopter accidents occur in three industry sectors: personal/private, instructional/training, and aerial application.

These three sectors accounted for more than half of the 39 fatalities and about 60 percent of the 148 total U.S.-registered rotorcraft accidents in 2012, far outdistancing the number of accidents that occurred in other sectors. In raw numbers, 21 people lost their lives among the 89 accidents in these three sectors last year.

This trend is not new. IHST's analysis of U.S. rotorcraft accidents in 2000, 2001, and 2006 collectively points to personal/private, instructional/training, and aerial application as the industry sectors responsible for the highest numbers of U.S. rotorcraft accidents.

Perhaps more disturbing is that the FAA estimates that these three sectors account for a low percentage of the overall U.S. rotorcraft hours flown. That equates to an accident rate per hour flown being much higher than that of other industry sectors.

Message Received?

The accident trend continues even though IHST, the FAA, other government groups, and the rotorcraft industry have reinforced the message that pilots and operators need to take steps to ensure safer flights. IHST has provided detailed safety recommendations and policies, pilot safety checklists, accident statistics and information, and alerts about accident trends.

Photo courtesy of IHST

Members of IHST's Executive Committee

For some, a perception may exist that helicopters working in emergency medical services (EMS), air tours, and offshore operations are responsible for the most accidents. That perception is understandable because of the media interest and public scrutiny those industries often receive when an accident occurs. Yet, in 2012, the combined total of accidents in EMS, air tours, and offshore industry sectors was less than half of the number of accidents from personal/private operations alone.

The positive news is that the helicopters we fly, regardless of the manufacturer, continue to perform remarkably well. In 2012, accidents were rarely caused by the failure of a rotorcraft system or part. This fact is consistent with IHST observations during the past decade.

Unfortunately, this just reaffirms the uncomfortable reality that lapses in judgment and decision-making by pilots lead to most accidents. Examples of such lapses in 2012 included: selecting flight profiles at altitudes below what was necessary (typically below 100 feet AGL); exceeding the aircraft performance envelope by operating the aircraft over published weight limits; landing with a tailwind resulting in loss of control; inadequate power margin during high density altitude operations; and electing to proceed VFR into weather that was predominantly instrument meteorological conditions (IMC).

Outreach Outlook

IHST, a government-industry led organization, has reached out to combat this trend through news releases and other communications to industry trade magazines, helicopter websites, and social media platforms, such as Facebook and Twitter.

This leads to inevitable questions. If the message is out there, are the right people reading it? And if they are reading it, is any meaningful change occurring as to how they fly helicopters? The high accident numbers in these industry sectors suggest that efforts made to date just have not had enough of an impact.

How can we make 2013 better for these industry sectors? How can we reach more individual operators to make sure they get to share another birthday, anniversary, or vacation with their loved ones? The data and analysis from 2012 paint a clear picture of the problem. But if nothing changes, it is just another year worth of numbers.

Lee Roskop, a former U.S. Air Force officer and UH-1 helicopter pilot, works as an operations research analyst in the FAA Rotorcraft Directorate. He also has worked as an instructor and evaluator pilot at Air Force helicopter pilot training schools and has worked in Bell Helicopter's flight safety department.

Flight Forum

Great Job!

I want to say how great a job you are doing at the helm (yoke really) in making the technical journal information stuff readable, informative and not stuffy or too authoritarian for us independent minded pilots!

— R. C.

We are glad you find the magazine useful. Our team includes pilots and aviation junkies; we try very hard to be both relevant and interesting. Nice to hear that we've hit the mark!

Subtle Differences

Thanks for an excellent article on the ICAO phonetic alphabet. Most people are not aware that our ICAO alphabet was created by the International Telecommunications Union in the early 1950s. It was developed by a panel of linguists to be readily usable in most modern languages. One little known feature is the spelling of *Alfa* which is almost always commonly misspelled as "alpha," and *Juliett*, not "Juliet." The reason behind this is because if you ask a Frenchman or German to pronounce "alpha," he or she will say "alp-ha." In French, "Juliet" would be enunciated "joo-ee-ay." Not useful for distinct clarity at all! Thanks again for the good work.

— H. R.

Thanks for the feedback and the additional information. Linguistics and communications are really fascinating!

Flying Blind?

I just learned that they are planning to base a company that will build UAVs at my home base of (Ormond Beach) KOMN. KOMN is a very busy training airport with lots of traffic and non-native English speaking pilots. I can't help but think this will be a very dangerous mix of air traffic. Plus, I haven't seen any guidance on how UAVs are supposed to be integrated into the "see and avoid" concept.

— Ed

As you may know, there is a lot of interest in expanding the use of Unmanned Aircraft Systems (UAS) in the National Airspace System. The FAA is working on overall plans for safe integration of UASs into the NAS. In the meantime, please contact your local FSDO to discuss issues and concerns specific to your airport.

Loving the E-Reader Option!

Opening the .epub file in iBooks was easy and worked flawlessly. Thanks for the great idea and good work!

— David

We appreciate the feedback and are glad it worked so well for you. Happy reading!

Bahamas Requirements

I was reading the Nov/Dec 2012 issue of your great magazine when I came across what I suspect may be an error. On page 18 you list the requirements for sport pilots to fly to the Bahamas. While I don't know where to find the primary source for these requirements, you list, "A log book endorsement certifying the pilot is authorized to perform cross country flights." No such thing exists for sport pilots under the FARs or AC 61-65E. Such a requirement only applies to student pilots and recreational pilots, not sport pilots. Thanks again for another great issue.

— Helen

Thanks for your comments on the magazine. Concerning your question about requirements for sport pilots flying to Bahamas: Although it wasn't indicated, the sentence in regard to having a logbook endorsement for cross country is intended specifically for student pilots. Anyone with a sport pilot certificate would have already had this endorsement. In hindsight, we probably should have added the words student pilot next to that sentence to make it clearer.

FAA Safety Briefing welcomes comments. We may edit letters for style and/or length. If we have more than one letter on a topic, we will select a representative letter to publish. Because of publishing schedule, responses may not appear for several issues. While we do not print anonymous letters, we will withhold names or send personal replies upon request. If you have a concern with an immediate FAA operational issue, contact your local Flight Standards District Office or air traffic facility. Send letters to: Editor, *FAA Safety Briefing*, AFS-805, 800 Independence Avenue, SW, Washington, DC 20591, or email SafetyBriefing@faa.gov .

Let us hear from you — comments, suggestions, and questions: email SafetyBriefing@faa.gov or use a smartphone QR reader to go "VFR-direct" to our mailbox.

SUSAN PARSON

Now What, Batman?

I know I am dating myself with this one, but maybe you remember seeing at least a few late night reruns of the hokey 1960s *Batman* television series? I'm talking about the one with Adam West in the title role and Burt Ward as the ever-loyal Robin. Whenever the Dynamic Duo got into a scrape — and the series could exist only because that happened at least once an episode — Robin would pause, look at his mentor, and utter a line that has long since crossed into popular parlance: *"Now what*, Batman?"

Now you might be wondering what, aside from the bat-winged cape and wing-like fins on the Batmobile, could the 1960s-vintage *Batman* series have to do with aviation? Well, I don't know about you, but I have mentally muttered Robin's line to myself at least a time or two when I've been caught in aviation situations that I didn't plan or expect. And, to use the lexicon of those who study human error, some of those situations could have developed into "undesired events" unless I promptly found a good answer to the "now what, Batman?" query.

As befits a superhero, the caped crusader *always* had a ready response. Among my favorite chuckleworthy episodes (well before Fonzie's infamous "jumping the shark" stunt on the *Happy Days* series) was the one in which we see a remarkably dry dynamic duo riding surf boards. John Williams had not yet composed his thumping bass "DUH-dah" theme that heralds the great white's appearances on *Jaws*, but still you can almost hear it when Batman and Robin are suddenly surrounded by shark fins.

"Holy *Hexanchiform*! Now what, Batman?!"

I love this next bit. Batman calmly opens his cape and whips out a conveniently stashed can of "Bat Shark Repellent," — never leave home without it — and the finned fiends flee after just one aerosol-propelled "pfft" from the can. Rock on, Batman!

Repelling the Sky Sharks

There have certainly been times when, surrounded by saw-toothed sky sharks attracted by the chum of my own errors, I have wished I could just pull a spray can of "sky shark repellent" from my otherwise well-stocked flight bag. Until such a substance is invented, though, I have to rely on other tools and rules. With apologies to the Ph.Ds. for my admittedly unorthodox take on error management, here are three ways to avoid becoming lunch for sky sharks with an appetite for pilot error.

Rule #1: Stay out of shark-infested areas. Aviators too often get in trouble simply by flying into the wrong space, the wrong place, and/or in the wrong weather. Avoiding sky sharks can be as simple as staying out of their territory. Check the aeronautical charts to steer clear of the wrong spaces and places, and check the weather charts to avoid becoming prey to those that lurk in the murk.

Rule #2: Don't throw chum. One of the core tenets of error management is to design hardware, systems, and procedures to eliminate the obvious sources of error. This approach goes a long way toward keeping sky sharks at bay ... unless the pilot throws chum by disabling protective systems (think: landing gear circuit breaker) or willfully disregarding rules and safety procedures.

Rule #3: Take TEM (yes, that's an "M"). A military officer I know evaluates subordinates not on the basis of error-free performance, but rather on how they manage the mistakes they inevitably make. Life evaluates aviators in a similar way. That's where the discipline of threat and error management (TEM) comes in. Recognizing that it is impossible to completely eliminate human error, TEM focuses on error recognition, mitigation, and recovery.

So if you've blundered into sky shark-infested territory and/or compounded the problem with error chum, TEM is the sky shark-repelling answer to your "now what, Batman?" question. The sooner you admit that sky sharks are nigh (recognition), the more time you have to execute your escape (mitigation) and promptly tend to any sky shark-inflicted wounds (recovery). Don't leave home without it.

Susan Parson (susan.parson@faa.gov, or @avi8rix for Twitter fans) is editor of FAA Safety Briefing. *She is an active general aviation pilot and flight instructor.*

PAUL CIANCIOLO

FAA Faces

Guy Minor

National FAASTeam Program Manager, Western-Pacific Region

Photo courtesy of Guy Minor

Growing up in California during the early years of the Space Race put the excitement of aviation front and center for Guy Minor. So to earn money for flying lessons, he worked with his father maintaining equipment for a local apple farmer. This also taught Minor how to be a mechanic.

"I view myself as an aircraft mechanic. While still in high school, my first aviation job was an aviation mechanic's apprentice at a local FBO. During this time, among other things like sweeping the floor, my employer tasked me to salvage crashed aircraft, which exposed me to the stark reality that aviation is very unforgiving of human error," said Minor.

He later spent six years in the Navy as an electronics technician onboard the USS Snook — a nuclear powered fast-attack submarine. And prior to joining the FAA in 1995, Minor worked 10 years in the maintenance department at Navajo Aviation. There he received an Inspection Authorization and became the repair station's chief inspector.

Now, as an aviation safety inspector, Minor promotes aviation safety by disseminating information to the aviation community about risk management, system safety, and new technology concepts through the FAA Safety Team (FAASTeam) He supports the branch by providing human error and positive safety culture material, and serves as an adjunct instructor at the Transportation Safety Institute in Oklahoma City teaching the Experimental Aircraft Accident Investigation course.

"My passion is human error and just culture. I speak and write from the point of view of a mechanic addressing human factors issues as opposed to a psychologist addressing aviation issues."

Minor helps aviators embrace the concept that humans do make mistakes, which is not a matter of morality or even impaired capacity. The unforgiving nature of flying itself is what makes those mistakes so dangerous. The good news, he explains, is that we can manage the industry to be more forgiving of human error.

The biggest challenge to the FAASTeam is the old idea that people make mistakes because they are deficient of experience, training, character or some other personal resource, which breeds well-meaning attempts to provide more technical training.

"This is what got us to where we are now, but to improve we must start working within the system to reduce the pressure aviators feel to make mistakes and violate rules. ... A new idea would be to use the tools provided by the FAASTeam to influence organizations."

The FAASTeam's mission is to improve the nation's aviation safety record by conveying safety principles and practices through training, outreach, and education. And FAASTeam managers establish meaningful aviation industry alliances to encourage continual growth of a positive safety culture within the aviation community.

"With industry managers in control of the organizational conditions influencing unsafe acts, it would be helpful for aviators in all leadership positions to possess a management skill set that would ultimately support a positive safety culture."

It is not easy to reach the individual pilot who may walk from his car to his airplane and take off without benefit of flight planning, weather briefing, or air traffic control. There are those who fly this way.

"It is still not easy, but perhaps more rational to reach individuals by reaching the FBO or flight school that provides instruction, maintenance, fuel and other services."

Go to FAASafety.gov to learn more about the resources available through the FAASTeam.

Paul Cianciolo is an assistant editor and the social media lead for FAA Safety Briefing. He is a U.S. Air Force veteran, and a rated aircrew member and search and rescue team leader with the Civil Air Patrol.

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